WHAT IS CLAIMED IS:

1. A method for high-pass filtering for echo processing in a pulse echo level measurement system, said level measurement system having a transducer for transmitting pulses and receiving echoes and including a receiver for converting the received echoes into corresponding receive signals, said method comprising the steps of:

(a) transmitting a transmit pulse to a reflective surface;

(b) receiving an echo and converting the echo into a receive signal, said receive signal having a plurality of peaks and troughs;

(c) defining a maximum signal profile, said maximum signal profile being an upper envelope of said receive signal;

(d) defining a minimum signal profile, said minimum signal profile being a lower envelope of said receive signal;

(e) defining a midpoint reference signal between said maximum signal profile and said minimum signal profile; and

(f) subtracting said midpoint reference signal from said receive signal to generate a filtered signal.

2. The method claimed in claim 1, wherein said midpoint reference signal is halfway between said maximum signal profile and said minimum signal profile.

3. The method claimed in claim 2, wherein said step of defining a midpoint reference signal includes adding said minimum signal profile to said maximum signal profile to create a composite profile and dividing said composite profile by two to create said midpoint reference signal.

4. The method claimed in claim 1, wherein said receive signal includes a sequence of samples, including a last sample, each of said samples having a magnitude, and wherein said step of defining a maximum signal profile includes

setting the magnitude of said maximum signal profile equal to the magnitude of said last sample and, moving backwards in the sequence, comparing the magnitude of said maximum signal profile to the magnitude of each of said samples and setting said maximum signal profile to the magnitude of one of said samples if the magnitude of said one of said samples is greater than the magnitude of said maximum signal profile, thereby tracking the upper envelope of said receive signal.

5. The method claimed in claim 4, wherein said sequence of samples includes a first sample and said step of defining a minimum signal profile includes setting the magnitude of said minimum signal profile equal to the magnitude of said first sample and, moving forwards in the sequence, comparing the magnitude of said minimum signal profile to the magnitude of each of said samples and setting said minimum signal profile to the magnitude of one of said samples if the magnitude of said one of said samples is less than the magnitude of said minimum signal profile, thereby tracking the lower envelope of said receive signal.

6. A pulse-echo acoustic ranging system comprising:

(a) a transducer for emitting acoustic pulses and detecting reflected echoes;

(b) a controller having a receiver component and a transmitter component;

(c) said transducer having an input port operatively coupled to said transmitter component and being responsive to said transmitter component for emitting said acoustic pulses, and said transducer including an output port operatively coupled to said receiver component for outputting reflected echoes coupled by said transducer;

(d) said receiver component converting said reflected acoustic pulses into a receive signal, said receive signal having a plurality of peaks and troughs;

(e) said controller including a first program component for defining a maximum signal profile, said maximum signal profile being an upper envelope of

said receive signal, a second program component for defining a minimum signal profile, said minimum signal profile being a lower envelope of said receive signal, a third program component for defining a midpoint reference signal between said maximum signal profile and said minimum signal profile, and a fourth program component for subtracting said midpoint reference signal from said receive signal to generate a filtered signal.

7. The system claimed in claim 6, wherein said receive signal includes a sequence of samples, including a last sample, each of said samples having a magnitude, and wherein said first program component includes a program component for setting the magnitude of said maximum signal profile equal to the magnitude of said last sample and, moving backwards in the sequence, comparing the magnitude of said maximum signal profile to the magnitude of each of said samples and setting said maximum signal profile to the magnitude of one of said samples if the magnitude of said one of said samples is greater than the magnitude of said maximum signal profile, thereby tracking the upper envelope of said receive signal.

8. The system claimed in claim 7, wherein said sequence of samples includes a first sample and said second program component includes a program component for setting the magnitude of said minimum signal profile equal to the magnitude of said first sample and, moving forwards in the sequence, comparing the magnitude of said minimum signal profile to the magnitude of each of said samples and setting said minimum signal profile to the magnitude of one of said samples if the magnitude of said one of said samples is less than the magnitude of said minimum signal profile, thereby tracking the lower envelope of said receive signal.

9. The method claimed in claim 6, wherein said midpoint reference signal is halfway between said maximum signal profile and said minimum signal profile.

10. The method claimed in claim 9, wherein said third program component includes a program component for adding said minimum signal profile to said maximum signal profile to create a composite profile and dividing said composite profile by two to create said midpoint reference signal.